

SUPPORT FOR THE AMENDMENTS

This Amendment cancels Claims 6, 8-10 and 16-25; amends Claims 1, 3, 7, 11 and 15; and adds new Claims 26-34. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 1 is found in canceled Claims 6, 10 and 16 and in the specification at least at page 4, lines 3-6 and 12-14; and page 6, lines 5-7. Support for new Claims 26-28 is found in Claim 4. Support for new Claim 29 is found in the specification at least at page 8, line 25. Support for new Claims 30-31 is found in Claim 1. Support for new Claims 32-34 is found in Claim 11. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1, 3-4, 7, 11, 13-15 and 26-34 will be pending in this application. Claim 1 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention provides a process for the creation of organized 3D nanostructures. Specification at page 1, lines 4-6. A focused beam of silicon or germanium ions deposits atoms that form nucleation sites for CVD growth of the nanostructures. Specification at page 4, lines 3-11.

Claims 1-4, 6-14 and 17-23 are rejected under 35 U.S.C. §102(e) over U.S. Patent Application Publication No. US 2005/0133476 A1 ("Islam").

Islam discloses methods of growing a nanowire laterally from vertical surfaces of a substrate. Islam at abstract. Islam discloses that reactive ion etching (RIE) can be used to remove selected portions of an oxide on a silicon substrate and thus form a patterned oxide layer. The patterned oxide layer serves as an etch mask for etching the silicon and forming

the vertical surfaces. Islam at [0046]-[0047]. Nanoparticle catalyst is deposited on one of the vertical surfaces and nanowire growth is carried out using a CVD process. Islam at [0054]; [0071].

However, Islam fails to disclose or suggest the independent Claim 1 limitation of "forming nucleation sites, in volume, by **localized deposition** of atoms suitable for the formation of such sites on a substrate by means of a ***focused beam of silicon or germanium ions***". Thus, the rejection over Islam should be withdrawn.

Claims 1, 3, 6, 8, 10, 13, 15, 17-19, 21 and 24 are rejected under 35 U.S.C. §102(b) over U.S. Patent Application Publication No. US 2003/0111336 A1 (sic) ("Lee").

Lee discloses that silicon cone arrays can be formed by argon ion-beam sputtering a substrate having a thin flat foil of a metal catalyst mounted around the substrate. Lee at abstract; [0006]-[0008]; [0037]-[0038]. Lee disclose that silicon oxide nanowires can be grown on the tips of the cones. Lee at [0044].

However, Lee fails to disclose or suggest the independent Claim 1 limitation of "forming nucleation sites, in volume, by **localized deposition** of atoms suitable for the formation of such sites on a substrate by means of a ***focused beam of silicon or germanium ions***". Thus, the rejection over Lee should be withdrawn.

Claims 1, 3 and 17-18 are rejected under 35 U.S.C. §102(b) over U.S. Patent Application Publication No. US 2003/0157744 A1 ("Schlaf").

Schlaf discloses using a focused ion beam deposition technique to deposit on a substrate a catalyst of Ni, Co, Fe and combinations thereof; and growing a carbon nanotube from the catalyst using CVD. Schlaf at [0014]-[0017].

However, Schlaf fails to disclose or suggest the independent Claim 1 limitation of "a focused beam of **silicon or germanium ions**" or the independent Claim 1 limitation that "the

nanostructures comprise a **III-V type semiconductor material, or silicon or germanium**".

Thus, the rejection over Schlaf should be withdrawn.

Claims 16 and 25 are rejected under 35 U.S.C. §103(a) over Islam in view of U.S. Patent Application Publication No. US 2006/0231752 A1 ("Houge"). Houge fails to remedy the deficiencies of Islam. Houge discloses the use of a gallium ion beam for removing, imaging or milling operations on Si and Cu. Houge at [0100]-0103]; [0142]-[0146]. However, Houge fails to suggest the independent Claim 1 limitation of "forming nucleation sites, in volume, by **localized deposition** of atoms suitable for the formation of such sites on a substrate by means of a ***focused beam of silicon or germanium ions***".

Claims 7 and 20 are rejected under 35 U.S.C. §103(a) over Lee in view of U.S. Patent Application Publication No. US 2002/0076553 A1 ("Sharma"). Sharma fails to remedy the deficiencies of Lee. Sharma discloses that germanium fibers can be grown by using germane in the vapor phase. Sharma at [0022]. However, Sharma fails to suggest the independent Claim 1 limitation of "forming nucleation sites, in volume, by **localized deposition** of atoms suitable for the formation of such sites on a substrate by means of a ***focused beam of silicon or germanium ions***".

Because the cited prior art fails to suggest all of the limitations of independent Claim 1, the prior art rejections should be withdrawn.

Claim 6 is rejected under 35 U.S.C. §112, second paragraph. Claim 6 is canceled, so the rejection is moot and should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

A handwritten signature in cursive script, reading "Corwin Paul Umbach". The signature is written in dark ink and is positioned above a horizontal line.

Corwin P. Umbach, Ph.D.
Registration No. 40,211